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XII. *Experiments on checking the too luxuriant Growth of Fruit-Trees, tending to dispose them to produce Fruit: In a Letter to Mr. Peter Collinson, F. R. S. from Keane Fitzgerald, Esq; F. R. S.*

Dear Sir,

Read Feb. 12, 1761. **W**HEN you did me the favour of calling on me at Fulham, in autumn 1759, I shewed you some experiments I had made, in order to check the too luxuriant growth of young trees; which I promised to give you an account of, if they should succeed according to my expectation.

I had observed a method taken to bring young trees to bear, when planted in too rich a soil, by cutting away part of the bark from some of the main branches. This method, as I am informed, has brought them soon to bear plentifully; but leaves an ugly wound, the wood continuing bare, and apt to rot in that part.

I had some young plumb and cherry trees planted against a north pale, in a very rich soil. The plumb-trees had, in three years, shot forth the extremities of their branches to 15 or 16 feet distance, and had quite covered and overtopped the pale. As the cutting away of any of these branches would make the rest shoot the stronger, I made the following experiments, about the middle of August 1758.

I made a circular incision on the main arms of an Orleans plumb-tree, near the stem, quite through
the

the bark, where it was smooth, and free from knots. About 3 or 4 inches higher, I made another incision, in the same manner; then making an incision lengthways, from the upper to the under circumcission, I separated the bark intirely from the intermediate wood, covering it; and also the bare part of the wood, to keep the air from the wound; and letting them remain so for about a quarter of an hour, when the wound began to bleed, I replaced the bark as exactly as I could, and bound it round pretty tightly with bafs, so as to cover the wound intirely, and also about half an inch above and below the circumcissions.

I treated the intire stem of a duke cherry-tree in the same manner, about 10 inches from the ground, and below all its branches. Also several branches of a morelli cherry-tree; and the main arms of two perdrigon plumb-trees. These two last were old trees, which had been cut to the ground about four years before, and had shot forth very luxuriant branches, but had not since borne any fruit.

In about a month's time, the bark of these began to swell, both above and below the binding; when I unbound each of them, and found the several parts, that had been replaced, to be all fairly healed, except one, which was on the main arm of the perdrigon plumb-tree, part of which was healed, and about an inch in breadth of the bark, on one side of the longitudinal incision, remained loose, and afterwards dropped off. I bound them all again lightly with bafs, and let them remain so, until the beginning of the summer following; when I took off the binding intirely, and found them all healthy, and flourishing.

Each

Each of these trees bore plentifully that season, though, in general, reckoned a bad year for fruit.

This induced me, in the beginning of August 1759, to make the like experiments on several other young trees; some, that had not yet borne any fruit, and others, that had borne but a small quantity; particularly, two young pear-trees, that never yet had any bloom. I treated the main arms of one of these in the manner already described, and also several of the branches, that grew on these arms; likewise one of the arms of the other pear-tree. The first of these bore a surprizing quantity of fruit last summer; and the circumcised arm of the other bore a moderate quantity, though no other part of the tree had any appearance of bloom.

I made also the following experiments, on two branches of different young apple-trees, as nearly of the same size as I could find. I cut off the bark of these, as exactly as I could by a gage; changing them, and putting the bark of the branch of one tree on the branch of the other. I find, by the minutes I took, that a small slip of wood came off with the bark of one, and the bark of the other had a leaf-bud on it; which branch had also two apples growing on it. The bark of each of these healed perfectly, and the apples remained on, and ripened with the rest: the leaf-bud pushed forth leaves, and both the branches bore so very plentifully the last summer, that one broke down with its load; and the other would also, probably, have suffered the same fate, but that I had it supported. These were both non-pareil apple-trees, planted in asparagus beds.

I changed the barks of the branches of a peach and a nectarine tree; that, which was placed on the peach-tree, healed perfectly, and the branch produced a quantity of bloom last season; but the bloom of the whole tree, as well as of several others against the same wall, was intirely blasted. The gardener cut off the branch of the nectarine, when he was pruning, and nailing the trees, as he did of several others, on which I had made experiments of the same kind; against which he declared his opinion strongly, at the time of making; and said, he was sure the branches would all die, and the wall be quite bare in these parts; which, I suppose, he imagined would be a reflection on his skill in pruning and nailing a tree.

About the beginning of November last, I cut off one of the arms of the perdrigon plumb-tree, which had the experiment made on it in 1758, to examine what effect it had on the wood; to which, I found the bark between the circumcisions more firmly united, than in any other part. There was a dark vein, which ran through the wood in that part, which appeared of a harder texture than the rest of the branch.

On examining the minutes I had taken from time to time, of the observations I had made on these experiments, which I imagined I had been very exact in, I find I had omitted noting down any relative to the effect they had on the growth of the circumcised branches. I did not compare them by measure with other branches; but as far as I can speak by recollection, it has retarded the growth. I can be almost positive, that the cherry-tree, mentioned in the second experiment, the trunk of which had been circumcised

cumcised below all its branches, was, at the time, the largest of half a dozen of the same kind, which were planted at the same time, and is not so at present. I am sorry I cannot be so circumstantial in this particular, as I endeavoured to be in others; and am,

Dear Sir,

Your affectionate

humble servant,

Poland-Street,
Jan. 19, 1761.

Keane Fitzgerald.

XIII. *An Account of the Urtica Marina: In a Letter to Mr. Peter Collinson, F. R. S. from Joseph Gaertner, M. D.*

Dear Sir,

London, Feb. 12, 1761.

Read Feb. 12, 1761. **H**AVING lately visited the southern coasts of Cornwall, I met with several new and undescribed sorts of the *urticæ marinæ*, called by Mr. Hughes the animal flowers. I therefore take the liberty of sending you the inclosed drawings, [*Vide Tab. I.*] together with a short description of them, which, I flatter myself, will not be disagreeable to you, as these animals, in regard of the various and surprizing shape of their bodies, and on account of the few imperfect descriptions, that have hitherto been given even of the common sorts of them, may not be unworthy the notice of the curious. The name of *urtica*, as the celebrated Mr. de Reaumur,